

Exhibit A



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April 4, 2017

Via Overnight Mail

The Board of Directors
OvaScience, Inc.
9 Fourth Avenue
Waltham, Massachusetts 02451-7506

Attn: Michelle Dipp M.D., Ph.D., Executive Chair

Re: Shareholder demand concerning non-employee director compensation policy

Dear Board of Directors:

We write on behalf of our client, Nicholas W. Fulton, who is a current shareholder of OvaScience, Inc. ("OvaScience" or the "Company"). The purpose of this letter is to demand that the Company's Board of Directors (the "Board") take action to address excessive director compensation as well as compensation practices and policies pertaining to directors. Additionally, Mr. Fulton demands that the Company's shareholders be provided an opportunity to review, consider, and approve the same.

In the Company's Schedule 14A, filed April 18, 2016, with the Securities and Exchange Commission, it was revealed that the Board had adopted an amended and restated non-employee director compensation policy (the "2015 Policy"), in which all non-employee directors participate. The 2015 Policy has not been approved by shareholders at any time.

Under the 2015 Policy, the compensation of each non-employee director consisted of: (i) a \$35,000 annual cash retainer; and (ii) an award of a stock option to purchase 12,000 shares of OvaScience common stock. Additionally, non-employee directors acting as Chair of any Board committee are eligible for additional fees of up to \$15,000 per director and other members of committees receive fees of up to \$8,000 per committee. In addition, newly elected non-employee directors will be awarded an initial grant of a stock option to purchase 8,650 shares of OvaScience common stock.

The Company's director compensation practices and policies have caused the non-employee directors to be compensated at an extraordinarily high level – averaging in excess of \$300,000 per annum each. In fact, further to the 2015 Policy, the average total annual

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compensation per non-employee director per annum in 2015 was \$362,434.¹

In comparison, the average total compensation of S&P 500 directors for 2015 was \$277,237.² OvaScience, however, is *not* a constituent of the S&P 500 index but rather a current member of the Russell Microcap Index, a US micro-cap equity index. The median value of annual compensation for micro-cap companies in 2015 was \$115,125.³ The compensation that non-employee directors awarded themselves under the 2015 Policy (they adopted) thus greatly exceeds that of their peers, standing at a level well more than three times that which was appropriate.

In addition to waste of corporate assets, we submit that the compensation practices and policies pertaining to directors constitute a breach of fiduciary duty and amounts to an unjust enrichment for the non-employee directors who agree to accept the excessive levels of compensation they granted themselves. The Company and its shareholders should not bear the burden of these unreasonable costs.

As noted above, the 2015 Policy, which is concerned exclusively with the compensation of non-employee directors, has not been approved by shareholders since its adoption and becoming effective. Furthermore, the 2015 Policy does not contain any provision imposing some meaningful limitation on the awards that may be made to non-employee directors.

Accordingly, on behalf of our client, we demand that the Board takes all action necessary, including revising the awards of stock options and shares of common stock and cancelling any option and stock awards granted under the 2015 Policy until a newly revised director compensation plan may be proposed by the Company and reviewed, considered and approved by shareholders prior to its adoption. Considering the current make-up of the Board, we trust the Board will respond to this demand independently and impartially on behalf of the Company.⁴

¹ This amount of average total compensation per non-employee director during the year of 2015 consists of the award of \$263,430 in options or, in relation to newly elected non-employee directors, \$453,319 in options, plus where applicable a cash retainer and/or various additional fees and/or stock awards. Under the 2015 Policy, non-employee directors may elect to receive their annual fees for board and committee service in either cash or fully vested shares of OvaScience common stock.

² See Spencer Stuart's Board Index 2015.

³ See National Association of Corporate Directors and Pearl Meyer's Compensation Series, 2016.

⁴ The majority of the current Board is made up of independent directors. Presently, seven of eight directors (*i.e.*, Drs. Sexton and Howe, Ms. Fisher, and Messrs. Aldrich, Capello, Kozin, and Malley) are "independent" as defined under the rules of The NASDAQ Stock Market.

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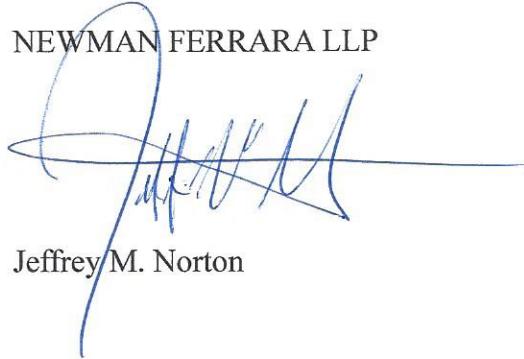
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Without a definitive response to this demand within twenty-one (21) days (*i.e.*, confirmation that the Board has taken or will take action with regard to the terms of this demand), such will be deemed a failure to act independently within a reasonable period of time. Thereafter, Mr. Fulton will consider available actions and remedies in order to compel the Board to act for the benefit of OvaScience and its shareholders.

Yours very truly,

NEWMAN FERRARA LLP



Jeffrey M. Norton

cc: Werner R. Kranenburg, Esq.